CLAIMS

1. A chromatography cartridge comprising:

a tubular housing having an open end and an inner surface; and

a plug positioned within the open end and having an outer circumferential surface, a substantial portion of the outer circumferential surface being fused to the inner surface of the tubular housing.

2. The chromatography cartridge set forth in claim 1, wherein the substantial portion of the outer circumferential surface of the plug is frictionally-welded to the inner surface of the tubular housing.

3. The chromatography cartridge set forth in claim 1, wherein the substantial portion of the outer circumferential surface of the plug is spin-welded to the inner surface of the tubular housing.

4. The chromatography cartridge set forth in claim 1, wherein the plug comprises a first portion positioned within the open end of the tubular housing and a second portion positioned to extend outwardly of the open end of the tubular housing.

5. The chromatography cartridge set forth in claim 4, wherein the second portion of the plug extends along at least a portion of an outer surface of the tubular housing to at least partially conceal the first portion of the plug.

6. The chromatography cartridge set forth in claim 1, wherein the cartridge is disposable.

7. The chromatography cartridge set forth in claim 1, wherein the cartridge has a longitudinal axis, and further comprising a plurality of axially-directed bores defined in an upper surface of the plug to provide coupling between a mechanical drive device and the plug.

8. The chromatography cartridge set forth in claim 1, further comprising at least one radially-extending rib on an upper surface of the plug to provide coupling between a mechanical drive device and the plug.

9. The chromatography cartridge set forth in claim 1, further comprising a cover positioned over the plug and tubular housing to hide at least a portion of the plug.

10. The chromatography cartridge set forth in claim 1, wherein the outer circumferential surface of the plug is fused to the inner surface of the tubular housing adjacent the open end of the tubular housing.

11. A method of manufacturing a chromatography cartridge, the chromatography cartridge comprising a housing having an open end and a longitudinal axis and a plug dimensioned to be received in the open end of the housing, the method comprising:

rotating at least one of the housing and the plug about the longitudinal axis with respect to the other of the housing and the plug; and

moving at least one of the housing and the plug toward the other of the housing and the plug to couple at least a portion of an outer surface of the plug to at least a portion of an inner surface of the housing.

12. The method set forth in claim 11, wherein rotating at least one of the housing and the plug includes rotating the plug a first amount in a first direction and rotating the plug a second amount in a second direction opposite the first direction.

13. The method set forth in claim 11, wherein rotating at least one of the housing and plug includes oscillating at least one of the housing and the plug.

14. The method set forth in claim 11, wherein rotating at least one of the housing and the plug includes rotating at least one of the housing and the plug in one direction.

15. The method set forth in claim 11, wherein rotating at least one of the housing and the plug and moving at least one of the housing and the plug occur simultaneously.

16. The method set forth in claim 11, wherein moving at least one of the housing and the plug includes inserting the plug into the open end of the housing.

17. The method set forth in claim 11, further comprising ceasing moving at least one of the housing and the plug when at least one of a first insertion force from moving the plug into the open end of the housing has been achieved, a first insertion force from moving the open end of the housing over at least a portion of the plug has been achieved, at least one of the housing and the plug has been moved a first distance, a first interface temperature between the outer surface of the plug and the inner surface of the housing has been achieved, the plug at least partially contacts a porous member within the housing, the plug at least partially contacts a chromatography medium within the housing, a user aborts the operation, a control system aborts the operation, and a combination thereof.

18. The method set forth in claim 11, further comprising ceasing rotating at least one of the housing and the plug when at least one of a first interface temperature between the outer surface of the plug and the inner surface of the housing has been achieved, a first number of rotations has been achieved, a first number of oscillations has been achieved, a user aborts the operation, a control system aborts the operation, and a combination thereof.

19. The method set forth in claim 11, further comprising coupling the plug to a spin-welding device via a plurality of ribs on an upper surface of the plug.

20. The method set forth in claim 11, wherein rotating at least one of the housing and the plug and moving at least one of the housing and the plug occurs simultaneously to frictionally-weld at least a portion of the outer surface of the plug to at least a portion of the inner surface of the housing.

21. The method set forth in claim 11, wherein rotating at least one of the housing and the plug and moving at least one of the housing and the plug occurs simultaneously to spin-weld at least a portion of the outer surface of the plug to at least a portion of the inner surface of the housing.

22. A chromatography cartridge comprising

a tubular housing having an inlet, an outlet, an open end, a longitudinal axis and an inner surface;

a first porous disk positioned within the tubular housing adjacent the inlet;

a second porous disk positioned within the tubular housing adjacent the outlet;

at least one chromatography medium received in the tubular housing and disposed axially between the first porous disk and the second porous disk; and

a plug positioned within the open end of the tubular housing and having an outer circumferential surface, at least a portion of the outer circumferential surface being fused to the inner surface of the tubular housing.

23. The chromatography cartridge set forth in claim 22, wherein at least a portion of the outer circumferential surface of the plug is frictionally-welded to the inner surface of the tubular housing.

24 The chromatography cartridge set forth in claim 22, wherein at least a portion of the outer circumferential surface of the plug is spin-welded to the inner surface of the tubular housing.

25. The chromatography cartridge set forth in claim 22, wherein the outer circumferential surface of the plug is fused to the inner surface of the tubular housing adjacent the open end of the tubular housing.

26. The chromatography cartridge set forth in claim 22, wherein the plug includes a first portion positioned within the open end of the tubular housing and a second portion positioned to extend outwardly of the open end.

27. The chromatography cartridge set forth in claim 26, wherein the second portion of the plug extends at least partially along an outer surface of the tubular housing to at least partially conceal the first portion of the plug.

28. The chromatography cartridge set forth in claim 22, further comprising at least one axially-extending bore defined in an upper surface of the plug to provide coupling between a mechanical drive device and the plug.

29. The chromatography cartridge set forth in claim 22, further comprising at least one radially-extending rib on an upper surface of the plug to provide coupling between a mechanical drive device and the plug.

30. A method of manufacturing a chromatography cartridge, the method comprising:

providing a tubular housing having an inlet, an outlet, a longitudinal axis, an open end and an inner surface;

providing a plug dimensioned to be received within the open end of the tubular housing and having an outer surface;

positioning a first porous member within the tubular housing adjacent the outlet;

filling the tubular housing with at least one chromatography medium;

positioning a second porous member within the tubular housing adjacent the inlet such that the at least one chromatography medium is disposed between the first porous member and the second porous member; and

coupling at least a portion of the outer surface of the plug to at least a portion of the inner surface of the tubular housing in response to rotating at least one of the plug and the tubular housing about the longitudinal axis with respect to the other of the plug and the tubular housing.

31. The method set forth in claim 30, further comprising moving at least one of the plug and the tubular housing toward the other of the plug and the tubular housing.

32. The method set forth in claim 30, wherein rotating at least one of the plug and the tubular housing includes oscillating at least one of the plug and the tubular housing back and forth.

33. The method set forth in claim 30, wherein rotating at least one of the plug and the tubular housing includes rotating at least one of the plug and the tubular housing in one direction.

34. The method set forth in claim 30, wherein rotating at least one of the plug and the tubular housing includes rotating the plug a first amount in a first direction and rotating the plug a second amount in a second direction opposite the first direction.

35. The method set forth in claim 31, wherein rotating at least one of the plug and tubular housing and moving at least one of the plug and the tubular housing occurs simultaneously.

36. The method set forth in claim 31, wherein moving at least one of the plug and the tubular housing includes inserting the plug into the open end of the tubular housing.

37. The method set forth in claim 30, further comprising coupling the plug to a mechanical drive device via at least one recess defined in upper surface of the plug.

38. The method set forth in claim 30, further comprising coupling the plug to a mechanical drive device via at least one axially-extending bore defined in the plug.

39. The method set forth in claim 30, wherein coupling at least a portion of the outer surface of the plug to at least a portion of the inner surface of the tubular housing includes frictionally-welding.

40. The method set forth in claim 30, wherein coupling at least a portion of the outer surface of the plug to at least a portion of the inner surface of the tubular housing includes spin-welding.

41. The method set forth in claim 30, further comprising ceasing rotating at least one of the plug and the tubular housing responsive to at least one of achieving a first interface temperature between the outer surface of the plug and the inner surface of the tubular housing, achieving a first number of rotations, achieving a first number of oscillations, a user aborting the operation, a control system aborting the operation, and a combination thereof.

42. The method set forth in claim 31, further comprising ceasing moving at least one of the plug and the tubular housing responsive to at least one of moving at least one of the plug and the tubular housing a first distance, achieving a first insertion force of the plug into the open end of the tubular housing, achieving a first insertion force of the open end of the tubular housing over at least a portion of the plug, achieving a first interface temperature between the outer surface of the plug and the inner surface of the tubular housing, the plug at least partially contacting a porous member within the tubular housing, the plug at least partially contacting at least one chromatography medium within the tubular housing, a user aborting the operation, a control system aborting the operation, and a combination thereof.